CITIZEN WILDLIFE MONITORING PROJECT

2014-2015 WINTER FIELD SEASON REPORT

May 2015

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(Cover Photo: Left front track of a bobcat. Photo by David Moskowitz)

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EXECUTIVE SUMMARY

The Citizen Wildlife Monitoring Project uses trained volunteers to record the presence and movement of wildlife, through snow tracking surveys and remote camera installations, in the Washington Cascades and other wildlands across the state. This report summarizes snow-tracking efforts for the winter. The 2014-2015 winter field season marked the ninth winter of snow-tracking along Interstate 90, east of Snoqualmie Pass. The entire second half of the snow-tracking season was cancelled due to lack of snow cover on all of the project's transects, making this season's snowpack the worst in project history.

While several of the transects were visited three or more times, snow conditions were often extremely poor or inconsistent. Besides making detection of tracks difficult, these conditions also limited teams' ability to trail wildlife. Only one observation of an animal crossing the interstate, a raccoon entering an interstate underpass, was documented over the course of truncated field season. Due to the lack of consistent snow cover and poor snow quality, a higher percentage of observations were made from sign other than footprints than in past years. We

recorded no high priority species this winter. The project identified one species previously undetected in past years—aplodontia (*Aplodontia rufa*), a relatively common species expected in the subalpine habitat found in parts of the study area. The results of our continued assessment of the observer reliability of our team leaders matches years past, continuing to suggest that field identification of tracks and signs has a high degree of accuracy.

In previous years, data from winter remote camera monitoring has also been reported in our 2014-2015 Winter Monitoring Report. However, this year to create more continuity and robustness of the program, all remote camera data will be reported on an annual cycle. The 2015 Remote Camera Monitoring Report will be made available in early 2016.

PROJECT OVERVIEW

The Citizen Wildlife Monitoring Project (CWMP) is a joint project of Conservation Northwest (a conservation and advocacy group), I-90 Wildlife Bridges Coalition (a group of organizations focused on advocating for infrastructure improvements included in the I-90 Snoqualmie Pass East Project and designed to improve habitat), and the Wilderness Awareness School (an environmental education organization). CWMP uses trained volunteers to monitor the presence, location, and movement of wildlife in the vicinity of proposed wildlife crossing sites east of Snoqualmie Pass along Interstate 90 in the Washington Cascades, and elsewhere in Washington State. CWMP uses remote cameras and snow tracking to document rare and sensitive species throughout core areas, providing security habitat for rarer wildlife, as well as more common species in strategically important locations. Since its inception, CWMP has remained an asset to wildlife agencies and professionals by providing additive monitoring efforts in areas identified as potential core habitat for some of our region's rarest wildlife. Our main project objectives are:

1. To engage and educate citizens on wildlife species and monitoring in critical habitat areas;

2. To record wildlife presence in the I-90 corridor and along the I-90 Snoqualmie Pass East Project in strategic locations and in core habitat through remote cameras and snow tracking;

3. To record the presence of rare and sensitive species that regional and national conservation efforts aim to recover including fisher, gray wolf, grizzly bear, lynx, and wolverine;

4. To facilitate exchange of information on wildlife, including data from monitoring efforts, between public agencies, organizations, and interested individuals.

CWMP is designed to support the conservation of our region's wildlife and wildlands by enhancing our knowledge of wildlife-habitat connections in our region, supporting the monitoring and management efforts of transportation and wildlife agencies, and providing engaging educational field experiences for volunteers.

The winter portion of CWMP is focused on snow-tracking along a 15-mile corridor on I-90 providing wildlife presence data to the I-90 Snoqualmie Pass East Project. In previous years, data from winter remote camera monitoring has also been reported in our 2014-2015 Winter Monitoring Report. However, this year to create more continuity and robustness of the program, all remote camera data will be reported on an annual cycle. The 2015 Remote Camera Monitoring Report will be made available in early 2016.

The I-90 Snoqualmie Pass East Project is a 15-mile highway improvement project that includes measures for connecting wildlife habitat, including construction of wildlife crossings. Construction on the first phase of the I-90 Snoqualmie Pass East Project has started with funding from the Washington State Legislature. Construction activities were not active during the snow-tracking season.

A complete description of the project's goals and methods, as well as a record of previous season reports, is available online at www.conservationnw.org/monitoring. This winter we have begun the process of analysis of several data sets from the project as we look towards publication of results of our findings from the project thus far. Topics we are exploring include: the efficacy of our citizen science model, a comparison of the effectiveness of various non-invasive research methods, behavioral observations of wildlife in relationship to the interstate, and the relationship of wildlife presence north and south of the Interstate prior to the start of crossing structure construction.

METHODOLOGY

Study Area

Snoqualmie Pass (3022 feet, 921 meters) is the lowest pass in the Washington Cascades. Interstate 90 traverses the pass from west to east. A large downhill ski complex sits at the summit of the pass, along with associated human infrastructure. A few miles east of the pass a large irrigation water reservoir on the headwaters of the Yakima River fills much of the valley bottom. The human footprint at the pass along with the high speed and heavily trafficked interstate highway makes Snoqualmie Pass the most tenuous wildlife corridor in the Washington Cascades. Ongoing reconstruction by the Washington Department of Transportation on Interstate 90 east of Snoqualmie Pass has been designed to improve road safety for motorists and increase the permeability of the road for wildlife.

Field Methods

CWMP uses trained volunteers to carry out snow tracking transects for wildlife adjacent to the Interstate. Set transects are monitored on average three times over the course of the winter. Transects were established at locations where crossing structures either existed and are being improved or have been targeted for installation. Transects parallel the highway, about 150 meters from the road bed and field times document tracks and signs of any mammal species larger than a snowshoe hare found along the route. At least one set of tracks is trailed on each transect on each visit in an attempt to document the animal's relationship to the interstate. Observations are photo-documented in the field and a sample of them are reviewed by expert observers out of the field to assess observer reliability. All species of high conservation value are photo-documented to ensure the accuracy of field documentation.

RESULTS AND DISCUSSION

Transect Data

As in previous years, coyotes where the most commonly detected species on transects. This winter deer and elk represented 29% of all detections and one of these two species was recorded at every transect besides Hyak/Silver Fir. The limited snowpack likely contributed to more activity from these two species in the study area than is normal in winters with a more typical snowpack. Deer, to some degree, and Elk, in particular, make large tracks and often make prints even in very poor snow conditions. This makes definitive identification relatively easier than other species in our study area. This fact could also have contributed to the increased percentage of observations of ungulates compared to other species this winter.

By the middle of February all of our transects where either completely devoid of snow or with only patches of snow remaining and all remaining transects were cancelled for the season. The poor snow conditions and lack of snow on parts of transects that where completed contributed to a larger than average number of observations made of sign other than tracks this winter (such as scats, and feeding and marking sign on trees and other vegetation).

A single new species was documented this winter. Aplodontia, or mountain beaver, (*Aplodontia rufa*) inhabit wet forests in the Pacific Northwest. In Washington State they are found most commonly west of the Cascades Crest and in moist subalpine forests along the crest and in a few locations east of the Cascades in similar wet subalpine habitat. They are active throughout the winter but in areas with heavy snowfall, activity is primarily subnivean. The Hyak/Silver Fir and SnoPass transects both have habitat commonly used by aplodontia. The extremely low snowpack at SnoPass this winter likely contributed to the detection of this species as there was no subnivean space for animals to use.

Table 1 Summary of 2015 Transect Data

Species	Easton North	Easton South	Hyak/Sliver Fir	Gold Creek North	Gold Creek South	PRNO W-S	PRNO W-N	PRNO E-N	PRNO E-S	Sno Pass-North	Sno Pass-South	% of all detections
Coyote	4	2	-	7	2	3	2	3	3	5	3	27%
Elk	5	4	-	1	-	3	3	1	2	-	-	15%
Mule deer	-	8	-	1	1	4	1	-	2	1	-	14%
Beaver	-	-	-	7	2	1	-	-	4	-	-	11%
Bobcat	3	-	-	3	-	2	-	1	2	-	-	9%
Raccoon	-	-	2	2	-	-	-	-	-	1	3	6%
Aplodontia	-	-	-	-	-	-	-	-	-	-	1	1%
River Otter	-	-	-	1	-	-	-	-	-	-	-	1%
Ambiguous	4	2	-	4	1	2	4	1	1	1	1	17%
Total Detections	16	16	2	26	6	15	10	6	14	8	8	
Average Detection	4	8	2	9	3	5	5	3	7	3	3	
# Site Visits	4	2	1	3	2	3	2	2	2	3	3	

Table 2 Summary of evidence types from the 2015 field season.

Evidence Type	% of observations
tracks	71%
scat	15%
sign	13%

Trailing Data

Field teams recorded a limited number of trailing events this winter. Poor snow conditions stymied a number of efforts in this regard. A single species was recorded traveling under the highway, a raccoon using the vehicle underpass close to the west end of the SnoPass transect.

Table 3 Summary of 2015 trailing activity

Species	Easton	Hyak/Sliver Fir	Gold-Creek	Price-Noble West	Price-Noble East	SnoPass North	% of all trailing events
Coyote	-	-	1	1	2	1	31%
Elk	2	-	-	1	-	-	19%
Mule deer	1	-	-	-	-	-	6%
Bobcat	1	-	-	1	-	-	13%
Raccoon	-	-	-	-	-	3	18%
Aplodontia	-	-	-	-	-	1	6%
Ambiguous	-	-	-	-	1	-	6%

Observer reliability

This winter the project amended its observer reliability protocol to increase the sample size of observations for review. Field teams photo documented every positive identification they made in the field all of which were reviewed independently by two experts. Despite the short field season, this doubled the sample size of observer reliability observations. Seventy nine observations were able to be definitively identified by validators from documentation provided. One definitive error was identified of these 79 observations. The single error this winter was of a species undetected in previous years. Findings from this winter with a greatly expanded sampling effort mirrored the results of past years and continue to suggest observer reliability is high for the project. During the coming year we will be carrying out a further analysis of this aspect of our project.

Table 4 Summary of 2015 Observer Reliability Results

	2015	Total From All Years
Number of observations	100	187
Correct (3/4)	78	134
Likely Correct (2)	9	26
Incorrect (0)	1	2
Can not determine from photo (1)	12	25
Percent definitively correct (excluding 1 and 2 from analysis)	98.7	98.5
Percent Definitively Incorrect (excluding 1 and 2 from analysis)	1	1.1
Percent indeterminate (of total observations)	12	13.3
Number of observers	9	
Species identified	Beaver, Bobcat, Coyote, Elk, Mule deer, Raccoon, River Otter	

Species identified incorrectly	Spotted skunk
Correction	Aplodontia

Citizen Science

Due to the truncated season (almost two-thirds of the planned transects were canceled for lack of snow) all volunteer hours were down this year. This year, as was true in the past few years, volunteers spent fewer hours on administration thanks to increased efficiency: tasks have become more routine; meetings are now done as conference calls or email meetings; and returning volunteers have strengthened the expertise of the project.

Table 5 Summary of Winter 2014-2015 Volunteer Participation

Number of Volunteer Team Leaders	9
Number of Other Transect Volunteers	35
TOTAL PROJECT VOLUNTEERS	**44**
Number of Transect Field Days	13
Number of Transect Volunteer Days	50
Transect Team Leadership Hours (Training and Field Days)	200
Project Leadership Volunteer Hours	62
Transect Volunteer Hours	488
TOTAL VOLUNTEER HOURS	**750**

Photo 1 Volunteer team leader Jeremy Williams, right, works with team members to document tracks found in the field.

RECOMMENDATIONS FOR NEXT FIELD SEASON

1. Continue to refine our electronic data collection methods and online interface for volunteers.
2. Update field maps and other resources for field team navigation.

ACKNOWLEDGEMENTS

APPENDICES

Appendix I: Advisory Council

(includes specific site advisors and project collaborators)

Jocelyn Akins, Cascades Carnivore Project
Keith Aubrey, USDA Forest Service, PNW Research Station
Paul Balle, I-90 Wildlife Bridges Coalition Steering Committee and Woodland Park Zoo
Scott Becker, WA Dept. of Fish and Wildlife
Michael Borysewicz, Colville National Forest
Craig Broadhead, WA Department of Transportation
Carol Chandler, Gifford Pinchot National Forest
Roger Christophersen, North Cascades National Park
Scott Fitkin, WA Department of Fish and Wildlife
William Gaines, Conservation Science Institute
Patty Garvey-Darda, Okanogan-Wenatchee National Forest
John Jakubowski, Gifford Pinchot National Forest
Gregg Kurz, US Fish and Wildlife Service
Chris Loggers, Colville National Forest
Robert Long, Woodland Park Zoo, formerly Western Transportation Institute
Andrea Lyons, Okanogan-Wenatchee National Forest
Paula Mackay, formerly Western Transportation Institute
Kelly McAllister, WA Dept. of Transportation
Jesse McCarty, Okanogan-Wenatchee National Forest
William Moore, WA Department of Fish and Wildlife
Chris Morgan, Western Wildlife Outreach and BearTrek
Dave Moskowitz, Wilderness Awareness School
Sonny Paz, Mt. Baker Snoqualmie National Forest
Jesse Plumage, Mt. Baker-Snoqualmie National Forest
Cathy Raley, USDA Forest Service, PNW Research Station
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David Volsen, WA Dept. of Fish and Wildlife
Aja Woodrow, Okanogan-Wenatchee National Forest
Don Youkey, Okanogan-Wenatchee National Forest
Josh Zylstra, WA Department of Transportation

Appendix II: 2015 Photo Highlights

Photo 2 Team leader Jeremy Williams poses with the unusual trail of an aplodontial walking in loose snow. SnoPass transect.
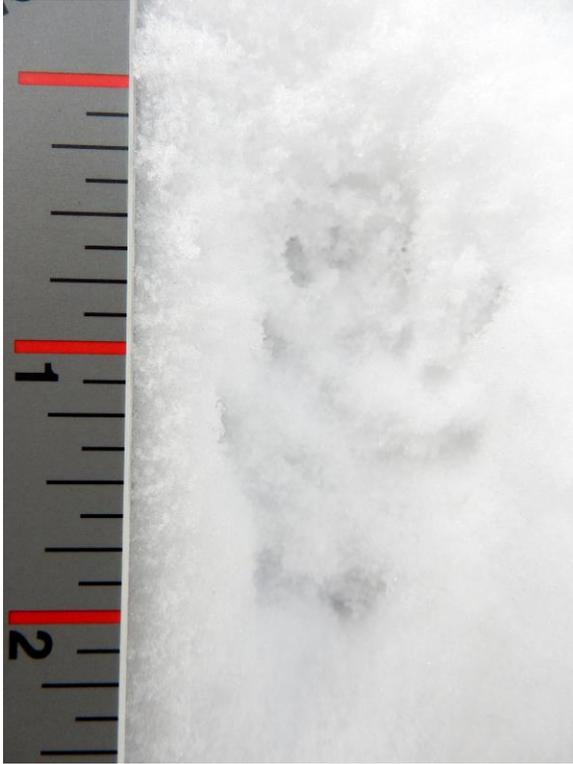
Photo 3 The left hind track registering over the top of the left front track of an aplodontia. SnoPass transect.

Photo 4 Alternating pattern of an aplodontia, likely trotting. SnoPass transect.
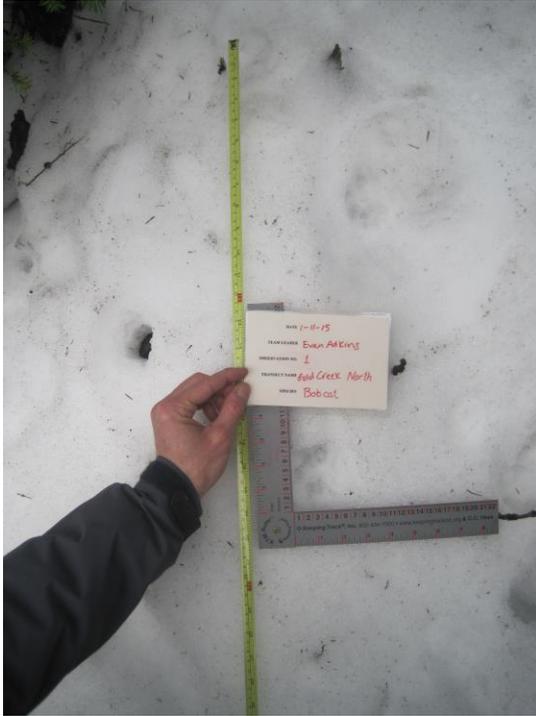
Photo 5 Photo documentation of a bobcat trail. Gold Creek transect.

Photo 6 Team leader Kim Shelton stands next to an elk antler rub from the Easton South transect which is located in an island of forest between the east and west bound lanes of the interstate, indicating that elk are using this habitat patch for more than just passing refuge while crossing the highway. Note the lack of snow on the ground in this photo taken in late January. Easton transect.